

The invention discloses a chemical-amplification positive-working photoresist composition in the form of a solution which is particularly suitable for the formation, on the surface of a substrate, of a photoresist layer having a thickness of 100 to 650 nm to be in compliance with the trend toward increasing fineness of photolithographic patterning in the manufacture of semiconductor devices. The photoresist composition comprises an organic compound capable of generating an acid by exposure to actinic rays, and a film-forming resinous compound having acid-dissociable substituent groups and capable of being imparted with increased solubility in an aqueous alkaline solution by interacting with an acid and a surface active agent in an amount not exceeding 50 ppm by weight based on the resinous compound, optionally, in combination with a tertiary aliphatic amine compound and/or a carboxylic acid.